

REMARKS

This is a Request for Continued Examination in response to the Final Office Action mailed April 8, 2003. Claims 1-11 and 29-40 are pending. Claims 1, 3, 6, 8, 9, 10 and 34 have been amended. Reconsideration and allowance of the instant application are respectfully requested.

Independent claims 1, 6 and 9 pertain to enclosures for underground use or substantially subterranean use. These enclosures include a plurality of pultruded prefabricated panels formed of a fiber resinous composite matrix. Independent claim 34 pertains to a vault assembly for substantially subterranean environment. Applicant has advanced enclosure and vault technology by applying pultrusion which has not heretofore been used before in constructing vault or enclosures components for underground use and panels as described in the present application.

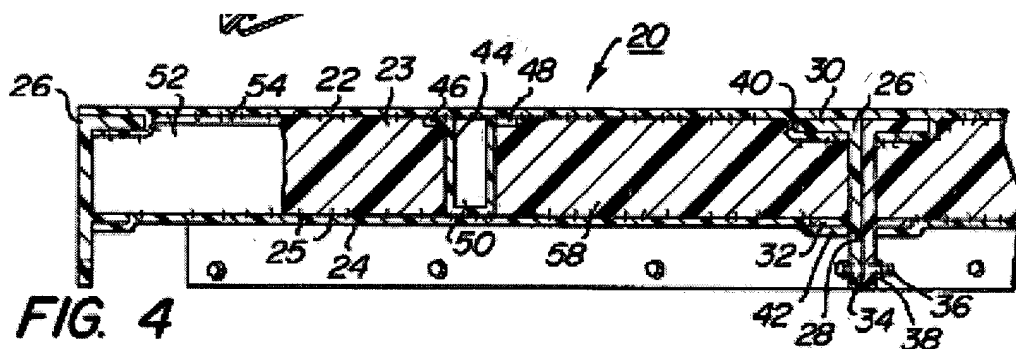
The Office Action relies on U.S. Patent No. 5,210,984 to Eckel to anticipate claims 1-11 29, 31, and 33 under 35 U.S.C. § 102(b). The Office Action relies on U.S. Pat. No. 4,078,348 issued to Rothman, to anticipate claims 1-11 and 29-40 under 35 U.S.C. § 102(b).

Eckel is devoid of any teaching of a pultruded enclosure or vault assembly. Eckel describes an audiometric booth that includes modular acoustical back, side, floor, and top panels constructed of metal plates (see col. 4, lines 1-8). Eckel mentions the back and side panels could be replaced with glass-fiber reinforced plastic; however Eckel does not teach or suggest replacing these panels with a pultruded fiber resin construction. Moreover, Eckel does not teach or suggest replacing the metal top and bottom panels at all.

The structure of Eckel, in particular, the metal top and bottom panels, is completely unsuitable for a wet and high bearing loads typically of underground environments. For at least these reasons, one of ordinary skill art in the art would not employ the audiometric booth of Eckel in an underground or subterranean environment.

Likewise, Rothman does not teach or suggest an underground enclosure or vault assembly. Rothman discloses a construction panel for above ground buildings with a core of foamed polymeric material between face members 22, 24 as shown in FIG. 4 and face members 62 and 63 as shown in FIG. 5.

Referring to FIG. 4, Rothman describes pultrusion angle members 26 and pultrusion reinforcing members 44 which are part of a construction panel 20. FIG. 4 of Rothman is reproduced below with the noted members 26, 44 highlighted for ease of explanation.



Rothman does not teach or suggest that the face members 24, 26 (shown FIG. 4 above) or 62, 63 (shown in FIG. 5) are pultruded components, nor provides any reason for the face members to be of a pultruded construction. In fact, Rothman teaches away from using pultruded prefabricated panels, which include pultruded opposing planar

sheets attached to pultruded support members. The foam material and glass-fibers are used to create a bond to provide some strength. (See col. 9, lines 34-40). In the claimed panels of applicant with respect to claims 1, and 34, the pultruded construction achieves strength and stiffness without the need of foam insulation.

Independent Claim 1 and Dependent Claims 2-5, 10-11, and 29-31

With respect to independent claim 1, Eckel and Rothman fail to disclose an enclosure as recited having pultruded panels for constructing vertical panels, a ceiling and a floor. In particular, both references clearly fail to describe or suggest the recited feature that the planar sheets are pultruded. As noted in the foregoing, Eckel is completely devoid of any teaching of pultruded components. Likewise, Rothman does not teach or suggest any feature of pultruded planar sheets of a construction panel. It is respectfully submitted that Eckel and Rothman fail to teach or suggest each and every feature of the claim. Therefore, neither Eckel, nor Rothman anticipates claim 1. Accordingly, it is respectfully submitted that claim 1 is allowable. Claims 2, 5, 11, 29 and 30 are allowable for at least the reasons of claim 1.

Claim 3 is allowable for at least being dependent upon allowable claim 1. The enclosure of claim 3 provides a cap structure which advantageously assists in transferring the bearing load from the earth material to the vertical panels, e.g., walls, of the enclosure. This inventive feature is at least discussed on page 14 of the instant specification and shown in FIG. 29. Both Rothman and Eckel fail to teach or suggest a feature in which pultruded angle members are disposed at perpendicular interconnections which include a cap element that mates with the angle members. With respect to Eckel, the Office Action mentions that the trim members 34, 36 are fiber resin construction. (See Office Action ¶ 2). These trim members are not of a pultruded

construction as recited in claim 3. It is respectfully submitted that Eckel and Rothman fail to teach or suggest each and every feature of the claim. Therefore, neither Eckel, nor Rothman anticipates claim 3. It is respectfully submitted that claim 3 is allowable at least for the foregoing reasons.

Claim 4 is allowable for at least being dependent upon claim 1. Further, it is respectfully asserted that Eckel and Rothman fail to teach or suggest a bulkhead panel as recited. It is respectfully submitted that Eckel and Rothman fail to teach or suggest each and every feature of the claim. Therefore, neither Eckel, nor Rothman anticipates claim 4. Accordingly, claim 4 is allowable at least for these reasons.

Claim 10 is allowable for at least being dependent upon claim 1. Further, it is respectfully asserted that Eckel and Rothman clearly fail to teach pultruded panels being unitarily formed as recited in claim 10. This inventive feature further defines that the pultruded enclosure construction provides significant advantages as noted in Applicant specification at least on page 8. The pultruded panels have greater uniform strength and increased manufacturing efficiencies can be realized by reduction in labor to assemble the panel components. Further, additional cost savings can result from using less material. It is respectfully submitted that Eckel and Rothman fail to teach or suggest each and every feature of the claim. Therefore, neither Eckel, nor Rothman anticipates claim 10. Accordingly, the claim 10 is allowable at least for these reasons.

Claim 31 is allowable from at least the reasons advanced with respect to claim 1. With respect to claim 31, it is respectfully asserted that neither Rothman nor Eckel disclose the enclosure of claim 1, further including a plurality of vertically disposed pultruded connectors interposed between adjacent vertical wall panels for bounding together, the connectors having opposed receiving pockets configured receive and seal an interior of the enclosure. It is respectfully submitted that Eckel and Rothman fail to

teach or suggest each and every feature of the claim. Therefore, neither Eckel, nor Rothman anticipates claim 31. Additionally, the Office Action requested clarification of the recited features and objected to the drawings. The recited features are at least discussed on page 9 and shown in FIGS. 3 and 13 with respect to connector 48. In view of the foregoing, it is respectfully submitted that the drawing objection has been overcome in that there is no need to submit corrected drawings.

Independent Claims 6 and 9; Dependent Claims 7, 8, 32 and 33

It is respectfully asserted that independent claims 6 and 9 are allowable over Eckel or Rothman. An inventive enclosure as recited in claims 6 and 9 includes pultruded vertical panels which have increased panel section stiffness provided by least one of a plurality of graphite and aramid fibers. Both Rothman and Eckert are devoid of this provision. These features are described on pages 15 and 17 of the instant application. These inventive features reduce the panel flexure and increase the bending strength particularly advantageous of underground environments. Rothman and Eckel fail to teach or suggest increasing the stiffness of the panels with the recited fibers to effect bending flexure in vertical wall panels. Accordingly, claims 6 and 9 is allowable at least for these reasons. Claim 33 is allowable for at least the reasons of claim 6.

Further with regard to claim 9, Eckel is devoid of any teaching or suggestion of a vertical, floor, and ceiling panels comprising at least 40% fiberglass by weight. While Eckel mentions that the back and side panels could be replaced with glass-fiber reinforced plastic, there is absolutely no disclosure of the portions of the material composition. Further, Rothman fails to teach or suggest vertical panels with at least one of a plurality of graphite and aramid fibers which also comprise at least 40%

fiberglass by weight. As noted in applicants specification, at least on pages 15-17, this inventive feature provides significant structural advantageous in that it provides an increased strength-to-weight ratio which permits an enclosure to have longer wall sections with less weight than concrete type vault and enclosures. Accordingly, claim 9 is allowable for at least these reasons.

Claim 7 is dependent on independent claim 6. It is respectfully asserted that claim 7 is allowable over Eckel or Rothman. Eckel and Rothman fails to describe connectors which are bands of fiberglass bonded to the ends of adjacent lateral wall panels and adjacent longitudinal wall panels. Accordingly, claim 7 is allowable at least for these reasons.

Claim 8 is allowable for at least the reasons as independent claim 6. It is respectfully submitted that Eckel and Rothman fails to describe H shaped connectors which are interposed between ends of the adjacent lateral wall panels and adjacent longitudinal wall panels such a portion of the planar sheets are received and bonded to the connectors. These features are at least discussed on page 9 of the instant specification. It is respectfully asserted that claim 8 is allowable over Eckel and Rothman. Accordingly, claim 8 is allowable for at least these reasons.

Claim 32 is allowable for at least the reasons of claim 6. Regarding claim 32, it is respectfully asserted that Rothman fails to disclose the enclosure of claim 7, wherein the bands of fibers are configured to seal an interior of the enclosure. The recited feature provides sealing of the interior of the enclosure. For example, the sealing feature is useful in underground environments. Rothman is devoid of this provision.

Regarding claim 33, it is respectfully asserted that Rothman or Eckel fail to disclose the enclosure of claim 8, wherein the connectors further comprise a two receiving pockets being opposed longitudinally. The Office Action requested clarification of recited feature. This recited feature is at least discussed on page 9 and shown in FIGS. 3 and 13 with respect to connector 48.

Claims 34-40

Claims 34-40 recite an inventive vault assembly of the present invention. As noted in the specification, a pultruded component designates that the component is created by a process of pultrusion - a method of manufacturing reinforced plastic shapes that includes continuously pulling resin rich reinforcements through a heated steel die to form profiles of constant cross section. Claim 34 has been amended to clarify this feature. With respect to claim 34, it is respectfully asserted that Rothman fails to disclose a vault assembly with a plurality of fiber reinforced panels having a constant cross-section being formed by pultrusion configured for being bonded together, said pultruded panels including a plurality of integral spaced support members disposed between two opposing panel surfaces defining a plurality of spaced interstitial pockets interposed therebetween, the vault system comprising: a plurality of vertical wall panels configured to be interconnected therebetween; a floor panel configured for fixedly bonding to a lower end of the vertical wall panels; and a ceiling panel configured for fixedly bonding to an upper end of the vertical wall panels to define an interior enclosure. Claims 35-40 are allowable by least being dependent upon claim 34.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that this application is in condition for allowance. Should the Examiner believe that anything further is desirable in order to place the application in better form for allowance, the Examiner is respectfully urged to contact Applicants' undersigned representative at the below-listed

Serial No. 09/722,647

number. If any additional fees are required or if an overpayment has been made the Commissioner is authorized to charge or credit Deposit Account No. 19-0733.

Respectfully submitted,

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